The amendment also shortens the Abstract of the Disclosure as requested by the Examiner. Applicant submits substitute page 77 with this amendment, which comprises the new Abstract of the Disclosure.

THE SPECIFICATION

Applicant will indicate the status of each parent application as called for by the Examiner, upon the indication of allowable subject matter in this application and amend the written description accordingly. As of now, all of the parent applications are pending.

Information Disclosure Statement

The Examiner has ruled that applicant's Information Disclosure Statement filed February 9, 2001 does not comply with 37 C.F.R. §1.98(a)(2) which requires a legible copy of the documents cited in the Information Disclosure Statement. The Examiner further notes that she has placed the Information Disclosure Statement in the application file but has not considered it. Applicant points out that the present application is a 37 C.F.R. §1.53(b) continuation application based on prior application Serial No. 08/943,123, filed October 3, 1997 which is a continuation of Serial No. 08/583,587, filed January 5, 1996, which is a CIP of Serial No. 08/487,436, filed June 7, 1995.

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The Manual of Patent Examining Procedure instructs "the Examiner will consider information which has been considered by the Office in a parent application when examining (A) a continuation application filed under 37 C.F.R. §1.53(b) . . . Such information need not be resubmitted in the continuing application unless the applicant desires the information to be printed on the patent." (M.P.E.P. Section 609(I)(A)(2.) p. 600-119, August 2001) (emphasis added). Accordingly, applicant requests that the Examiner in the next Office Action indicate that she has considered the information "which has been considered by the Office" in the parent applications.

The Rejections and Traverse

The Rejections Under 35 U.S.C. §112 and Traverse

The Examiner rejects claims 57-77 under 35 U.S.C. §112, first paragraph as containing subject matter which was not described in the specification in a way to reasonably convey to the skilled artisan that the inventor at the time the application was filed had possession of the claimed invention. Applicant traverses the rejection and requests further consideration and reexamination.

The Examiner argues the specification did not provide clear support for the language "essentially water-free composition." Applicant disagrees. The paragraph bridging pages 31 and 32 of the written description sets out a method for making the essentially water free lubricant compositions according to the invention, noting the lubricant composition which contains water "is then dried to remove the water, by placing it in a 27-38% R.H. environment or under vacuum or at elevated temperatures.

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This removes substantially all of the water introduced in the first part of the process." (Emphasis added.) The last sentence in the first full paragraph on page 41 of the written description also describes the dehydration of hydrated granules of superabsorbent polymer containing lubricant by air drying them at low humidity, or by chemical drying in a series of solvent baths. Clearly, the applicant was in possession of that aspect of the invention that relates to an essentially water free composition comprising a superabsorbent polymer in combination with a lubricant at the time he filed the application.

The Examiner also argues that applicant provides no clear support in the specification generally for a coated substrate, and specifically for a coated wire or coated cable. Applicant disagrees. As for the coated substrate, the second paragraph on page 20 of the written description describes the invention as also comprising "a method of lubricating a surface comprising coating a surface with a lubricating composition comprising a superabsorbent polymer combined with a material for decreasing friction between moving surfaces as described. . . ." Applicant requests the Examiner to explain how conducting a process of applying a lubricant coating to a surface does not result in obtaining a surface with a lubricant coating.

As to the coated wire, or coated cable, pages 6-19 of the written description describe the various lubricants used in combination with the superabsorbent polymer which include petroleum lubricants, synthetic lubricants, grease, solid lubricants and metal working lubricants. Importantly, page 20 of the written description states that

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applicant's lubricant composition comprises a superabsorbent polymer in combination with lubricants described in the written description which include those described at pages 6-19. One of the lubricants described at pages 6-19 include the lubricants noted on page 12 which comprise cable lubricants. (written description, page 12, line 6 from the bottom). The application therefore supports the claims directed to the lubricant of the invention on a substrate comprising a cable.

Furthermore, one of the lubricants described at pages 6-19 of the written description includes a lubricant applied to a wire substrate (page 16, line 8 from the bottom, page 17, line 5 and page 47, line 8 from the bottom). The application therefore also supports claims directed to the lubricant of the invention on a substrate where the substrate comprises a wire.

In view of the foregoing, applicant submits that those aspects of the invention as presently claimed relating to applying the superabsorbent polymer in combination with the lubricant, generally to a substrate and specifically to either a cable or a wire does not comprise new matter. Applicant clearly had possession of this aspect of the invention at the time he filed the application.

The Examiner rejects claim 61 and 71 under 35 U.S.C. §112, second paragraph as indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant traverses the rejection and requests further consideration and reexamination.

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The Examiner specifically argues that claims 61 and 71 do not include a further limitation for the compound of claims 57 and 67 respectively from which they depend, rather they allegedly redefine the compound, which broadens the scope of the claims.

Claim 57 broadly relates to a substrate coated with an essentially water-free composition comprising a superabsorbent polymer in combination with a compound which comprises a petroleum lubricant, synthetic lubricant, grease, or a solid lubricant where the compound optionally contains a lubricant additive.

Claim 61 narrows claim 57 by defining the petroleum lubricant as "a petroleum oil," and the synthetic lubricant of claim 57 as "a silicone, an organic ester or a glycol and combinations thereof." Similarly, claims 67 and 71 (method claims as opposed to substrate claims 57 and 61) employ the same terminology for the lubricants as claims 57 and 61. These claims therefor stand in relation to one another as genus/subgenus claims, an accepted claim practice recognized by the Patent and Trademark Office.

The Rejection Under 35 U.S.C. §102(b) and Traverse

The Examiner rejects claims 57-61, 63-65, 67-71, 73-75 and 77 under 35 U.S.C. §102(b) as anticipated by Geursen et al. WO 93/18223 ("Geursen"). In responding to the Examiner's rejection applicant will refer to the Geursen counterpart, United States Patent No. 5,534,304 which has the same written description as WO 93/18223.

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Guersen discloses a process for treating a substrate such as a fiber or fibrous product with a superabsorbent material. Geursen, without specifically mentioning it, faces a problem of applying a superabsorbent polymer coating to a substrate from a liquid medium. The superabsorbent polymer employed by Geursen does not dissolve in water, so Geursen forms an emulsion (actually a suspension) of the polymer in water by polymerizing the water soluble monomer in a water in oil medium to form the polymer in the aqueous phase of the emulsion (Col. 4, lines 1-16). Geursen uses the emulsion as a coating, and subsequently heat-treats it to drive off the water phase and oil phase, generally a relatively low boiling paraffin hydrocarbon. (Col. 3, lines 15-23). Geursen also discloses commercially available water-in-oil emulsions prepared in the same way, which may also include additives, such as lubricants and emulsifying agents. (Col. 4, lines 17-26; 42-47).

The disclosed aqueous polymerization of the monomer into a superabsorbent polymer appears to prevent Geursen from obtaining a polymer that absorbs greater than about 100 times its weight in water. The subsequent analysis of the Geursen examples will show that the reference contains experimental data showing the production of superabsorbent polymers that absorb only about 45 times their weight in water. Geursen therefore lacks an enabling disclosure of how to produce oil in water emulsions of superabsorbent polymers that absorb greater than about 100 times their weight in water.

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The reference describes yarns coated with a superabsorbent polymer composition which have a "swelling value" (Col. 7, lines 19-44) defined by a formula (Col. 7, lines 45-51). The swelling value consists of a number that indicates the relative water absorbency of the yarn or the yarn coated with the superabsorbent polymer composition.

Again, Geursen does not teach or suggest superabsorbent polymers that can absorb greater than about 100 times their weight in water for the process or product disclosed, as an analysis of the data in columns 9 and 10 bears out. Table A, reports experimental data for the swelling values of yarn samples coated with a water-in-oil emulsion where the yarn is a polyester yarn, with the untreated polyester yarn having a swelling value of 9. Using the formula in col. 7, lines 45-51:

$$\text{swelling value} = \frac{(a - b) \times 100}{b}$$

Arbitrarily setting the weight of the yarn (the value for "a") at 100 grams will give the dry weight of the yarn (the value for "b") as follows:

Example 1 Swelling value of uncoated yarn = 9 (Col. 9, lines 34-35)

$\frac{100-b}{b} = 0.09$

$100 = 1.096b$

$b = 91.74$ (dry weight of yarn)

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Yarn water absorption = 100 - 91.74 = 8.26

Example 1 Swelling value of coated yarn = 114 (Col. 9, line 28)

$$\frac{100-b}{b} = 1.14$$

$$100 = 2.146b$$

$$b = 46.72 \text{ (dry wt. of yarn and superabsorbent polymer)}$$

Coated yarn water absorption = 100 - 46.72 = 53.28

53.28 -8.26 = 45.02 water absorbed by superabsorbent polymer

46.27 x 2.1% polymer (Col 9, line 28) = 0.97 superabsorbent polymer on yarn

$$\frac{45.02}{0.97} = 46.3$$ Superabsorbent polymer absorbs 46.3 times its weight in water.

This shows that 0.97 grams of superabsorbent polymer picked up or absorbed 45.02 grams of water or 46.3 times its weight in water, less than one half of that of applicant's claimed superabsorbent polymer which absorbs greater than about 100

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times its weight in water. The same calculations will show the superabsorbent polymer of experiment 4 (Table B) coated on a nylon-6,6 yarn absorbs about the same amount of water, i.e., less than about one half applicant's claimed superabsorbent polymer that absorbs greater than about 100 times its weight in water.

These data from Guersen clearly suggest that the inventors did not know how to combine a lubricant with a superabsorbent polymer that absorbs greater than about 100 times its weight in water. Since the reference does not disclose this type of polymer coating or how to produce it, Geursen does not contain an enabling disclosure.

The examples of Geursen only teach superabsorbent polymer that absorbs about 45 times its weight in water and the recitation in the Geursen written description of superabsorbent polymers that absorb more does not overcome the lack of enablement of Geursen of how to combine these polymers with a lubricant. Applicant, on the other hand, has disclosed methods on how to combine superabsorbent polymers that absorb greater than 100 times their weight in water with lubricants.

Guersen faced the problem of applying a superabsorbent polymer to yarn, confronted with the difficulty that the superabsorbent polymers when combined with water had extremely high viscosities. The superabsorbent polymer employed, therefore had to have some flowable characteristics in order to apply it as a coating material. Guersen appears to address this problem by adding an electrolyte to the superabsorbent polymer. For example, Guersen, in column 9, lines 8 et. seq. discloses using a sodium salt of the superabsorbent polymer.

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Levy 1, however, discusses this well known technique of reducing the viscosity of a superabsorbent polymer, observing:

> normally, unmixed formulations of superabsorbent polymers and water have a tendency to form gels of such a high viscosity that they are not flowable. An additional technique used to render a viscous superabsorbent polymer composition . . . flowable, is the additional [sic, addition] of varying concentrations of one or more salt(s)/electrolyte(s) such as sodium chloride. . . . These salt-s/electrolytes have a tendency to interfere with the hydrogen bonding or reduce the hydrophilic bonding of the water to the gel. Also, superabsorbent polymers . . . absorb less water when electrolytes are present.

Levy, U.S. Patent No. 4,985,251 column 15, lines 12-26 (emphasis added).

This further supports the foregoing analysis of the Guersen data, and that Guersen had to obtain a formulation that he could coat onto a textile fiber, particularly a formulation that did not gel. It appears Guersen did this by adding a sodium salt to the superabsorbent polymer to break the gel, and in so doing obtained a flowable formulation, but reduced the water absorbency of the superabsorbent polymer to a value of about 45 times it's weight in water.

Granted Geursen discloses superabsorbent polymers having water absorbencies greater than 100, but the reference does not teach how to apply them to a substrate, other than by way of the examples, where the inventors appear to reduce the water absorbency to about 45 to obtain a reduction in polymer viscosity in order to produce a

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1 U.S. Patent No. 4,985,251, cited in the parent application.

coating they can apply to a substrate. The reduction in water absorbency correlates with a decrease in viscosity to make the superabsorbents more flowable, i. e., more readily coated onto a substrate. Again, Geursen appears to do this by adding an electrolyte, such as sodium chloride, to the superabsorbent polymer.

Because Geursen teaches superabsorbent polymers coatings that absorb only about 45 times their weight in water, the reference clearly raises the question of how the skilled artisan gets over the hurdle of this water absorbency of 45 to arrive at applicant's lower limit of water absorbency greater than about 100? The reference clearly lacks an enabling disclosure, and the Examiner has not met the burden of providing evidence that Geursen does in fact show a superabsorbent polymer in an aqueous medium suitable for coating a substrate, where the superabsorbent polymer absorbs greater than about 100 times its weight in water. Lacking this evidence, the rejection cannot stand.

Conclusions

Applicant requests that the Examiner withdraw the rejection, indicate the allowability of the claims and declare an interference between the present application and the Rebouillat et al. United States Patent application Serial No. 09/443,695, filed November 19, 1999 and designate the inventor of the present application as senior party in that interference.

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